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Name _____ Date _____

Practice: For use after Lesson 8.7, Algebra 2 with Trigonometry

Algebra 2
Unit #3
WS #2**Imaginary Numbers**

Simplify.

- | | | |
|---|---|-----------------------|
| 1. $\sqrt{-7}$ _____ | 2. $\sqrt{-25}$ _____ | 3. $\sqrt{-49}$ _____ |
| 4. $\sqrt{-3}$ _____ | 5. $\sqrt{-12}$ _____ | 6. $\sqrt{-45}$ _____ |
| 7. $2\sqrt{-20}$ _____ | 8. $7\sqrt{-3}$ _____ | 9. i^4 _____ |
| 10. i^{21} _____ | 11. i^{20} _____ | 12. i^{11} _____ |
| 13. $5i + 2i$ _____ | 14. $3i - 9i$ _____ | |
| 15. $5\sqrt{-7} + \sqrt{-7}$ _____ | 16. $3\sqrt{-2} - 4\sqrt{-2}$ _____ | |
| 17. $\sqrt{-9} \cdot \sqrt{-64}$ _____ | 18. $\sqrt{-81} \cdot \sqrt{-4}$ _____ | |
| 19. $10i \div 5i$ _____ | 20. $20i \div 4i$ _____ | |
| 21. $9i \div 2i$ _____ | 22. $6i \div 8i$ _____ | |
| 23. $\sqrt{-18} + 5\sqrt{-2}$ _____ | 24. $2\sqrt{-27} - 4\sqrt{-75}$ _____ | |
| 25. $6\sqrt{-6} \cdot 3\sqrt{-3}$ _____ | 26. $i\sqrt{-15} \cdot 2\sqrt{-3}$ _____ | |
| 27. $5i\sqrt{-6} \cdot 7\sqrt{-10}$ _____ | 28. $11\sqrt{-50} \cdot 4\sqrt{-6}$ _____ | |

Applications

29. **Electricity** The current in an electric circuit is $8i$ amperes. The current in a second circuit is $5i$ amperes. Find the total current in the two circuits. _____
30. **Electricity** The impedance in an electric circuit is $6i$ ohms. The impedance in a second circuit is $9i$ ohms. Find the ratio of the second impedance to the first impedance. _____

MIXED PRACTICE

Simplify.

- | | | |
|-----------------------|-----------------------|------------------------|
| 31. $\sqrt{44}$ _____ | 32. $\sqrt{16}$ _____ | 33. $\sqrt{-54}$ _____ |
|-----------------------|-----------------------|------------------------|

Find the distance between the points with the given coordinates.

- | | |
|-----------------------------|-------------------------------|
| 34. $(5, 1), (1, -2)$ _____ | 35. $(6, -3), (12, -7)$ _____ |
|-----------------------------|-------------------------------|